

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-13. (canceled)

14. (currently amended) A composite gas sensor comprising:
a reference gas chamber and a sample gas chamber defined by at least one solid electrolytic substrate;
a sample gas introducing passage for introducing a sample gas into said sample gas chamber;
a first solid electrolytic substrate having an inside surface defining a wall of said sample gas chamber and an outside surface to be exposed to said sample gas before said sample gas is introduced into said sample gas chamber;
a pump cell including first and second pumping electrodes provided on said first solid electrolytic substrate, said first pumping electrode being arranged so as to be exposed to said sample gas before said sample gas is introduced into said sample gas chamber, and said second pumping electrode being arranged so as to be exposed to the sample gas introduced into said sample gas chamber via said sample gas introducing passage, so that oxygen gas residing in said sample gas chamber is discharged from said sample gas chamber by a predetermined amount via said sample gas introducing passage when a voltage of a power source is applied between said first ~~and~~ second pumping electrodes;

a second solid electrolytic substrate having a surface defining a wall of said sample gas chamber and another surface defining a wall of said reference gas chamber;

an oxygen sensor cell having first and second oxygen sensing electrodes provided on said second solid electrolytic substrate to measure an oxygen concentration of said sample gas residing in said sample gas chamber, said first oxygen sensing electrode being arranged so as to be exposed to the sample gas stored in said sample gas chamber and said second oxygen sensing electrode being arranged so as to be exposed to a reference gas stored in said reference gas chamber;

a NOx sensor cell having first and second NOx sensing electrodes provided on said second solid electrolytic substrate, said first NOx sensing electrode being arranged so as to be exposed to the sample gas stored in said sample gas chamber and said second NOx sensing electrode being arranged so as to be exposed to the reference gas stored in said reference gas chamber, to measure a NOx concentration of the sample gas residing in said sample gas chamber after the discharging of oxygen gas by said pump cell is performed in response to a voltage of a power source applied between said first and second NOx electrodes;

a heater member provided for heating said first and second solid electrolytic substrates, said heater-member being located far from said first solid electrolytic substrate and close to said second solid electrolytic substrate via said reference gas chamber;

a first ammeter serially connected between said power source and said first NOx

sensing electrode of said NOx sensor cell to detect a limit current value representing the NOx concentration of the sample gas residing in said sample gas chamber; and

a second ammeter serially connected between said power source and said first pumping electrode of said pump cell to detect a limit current value representing the oxygen concentration of the sample gas residing in said sample gas chamber, wherein said first pumping electrode is located farther from said heater member than said second pumping electrode.

Claim 15. (canceled).

16. (previously presented) The composite gas sensor of claim 14, wherein said sample gas introducing passage is a pinhole.

17. (previously presented) The composite gas sensor of claim 14, wherein said first and second solid electrolytic substrates are porous, and

wherein said sample gas introducing passage is formed by a porous layer having a porosity larger than that of said first and second solid electrolytic substrates.